REMARKS/ARGUMENTS

Applicants appreciate the review of the present application as evidenced by the Official Action. Applicants also appreciate the indication that claims 2-4, 16-18, 30, 31, 33, 36, 37, 39 and 40 would be allowable if rewritten in independent form, according to the Office Action Summary. Items 8 and 9 of the Office Action, however, state that claims 2-4, 16-18, 30, 31, 33 and 36-40 would be allowable if rewritten in independent form. Please clarify whether claim 38 is objected to or rejected. The Official Action Summary states that claims 1, 5-15, 19-29, 32, 34, 35 and 38 are rejected, while items 1-7 state that claims 1, 5-15, 19-29, 32, 34-36 and 38 are rejected. Please also clarify whether claim 36 is rejected or objected to. As discussed in detail below, Applicants respectfully traverse the rejections of claims 1, 5-15, 19-29, 32, 34-35, (36) and (38). In light of the foregoing amendments and the subsequent remarks, Applicants respectfully request reconsideration and allowance of the present application.

A. The Rejection of Claims 29-34 under 35 U.S.C. § 112, second paragraph, is Overcome

The Official Action rejected claims 29-34 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Official Action states it is unclear how the method of claim 29 generates a flight network and inquires whether flight network means initiating communication. Based upon the remarks below, Applicants submit that the rejection of claims 29-34 under 35 U.S.C. § 112, second paragraph, is overcome.

As recited in independent claim 29, information describing a possible flight of an aircraft, which includes maintenance and operational constraints, is received and a flight network is generated from the received information. Thus, the flight network is not a communications network, instead it is a representation of the received information that describes possible sequences of flights for a given aircraft, which is utilized to generate the aircraft routing proposal. For example, as stated in paragraphs 28 and 29, the processor 106 may organize a flight network by creating data structures that contain at least location and/or time information in its memory. From the structures, a map of all flights in an airline schedule may be represented in

memory or other storage. Figure 3 illustrates an example of a flight network 300 that shows all possible flights for a particular aircraft meeting the maintenance and operational criteria in the received information. As stated in paragraphs 31 to 36, to determine the aircraft routing proposal, the processor 106 may model all maintenance and operational constraints in the received information in each aircraft's flight network and determine the most efficient and shortest path from origin to destination in the flight network, which represents an aircraft routing proposal for the respective aircraft. Thus, as recited in independent claim 29, the flight network is generated from the received information that describes a possible flight of an aircraft and includes maintenance and operational constraints. In addition, the flight network is utilized to determine an aircraft routing proposal. Therefore, it is clear how the method of claim 29 generates a flight network and, therefore, the rejection of claims 29-34 under 35 U.S.C. § 112, second paragraph, is overcome.

B. The Objection to the Drawings is Overcome

The Official Action objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they include reference item 301 in Figure 3 that is not mentioned in the description. This reference number, however, is mentioned in the description in paragraph 29, which states that "The vertical timelines are located over a horizontal space representing given stations, such as airports "A", "B", "C", and "D" 301. Therefore, the objection to the drawings is overcome.

C. The Rejections of Claims 1, 5-15, 19-29, 32, 34, 35 and 38 under 35 U.S.C. § 103(a) are Overcome

The Official Action rejected claims 1, 5, 7-15, 19, 20-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,571,171 to Pauly in view of U.S. Patent No. 6,163,744 to Onken et al. The Official Action rejected claims 10-13 and 24-27 under 35 U.S.C. § 103(a) as being unpatentable over the Pauly '171 patent in view of the Onken '744 patent and further in view of U.S. Patent No. 5,657,231 to Nobe et al. The Official Action rejected claims 14 and 28 under 35 U.S.C. § 103(a) as being unpatentable over the Pauly '171 patent in view of the Onken '744 patent and further in view of U.S. Patent No. 6,216,109 to Zweben et al. The Official

Action rejected claims 29, 32, 34-36 and 38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,943,919 to Aslin in view of the Onken '744 patent.

The Pauly '171 patent discloses an apparatus and method for inserting a waypoint into a preexisting flight plan, which includes selecting a waypoint on a Flight Management System (FMS) graphical display of a portion of the flight plan and automatically generating a proposed changed flight plan. See Abstract. Thus, once a pilot has selected waypoint 201 in the display of Figure 2, the pilot is given an option of inserting the waypoint 201 into the flight plan by clicking the insert button 204. The display of Figure 3 is then shown. The newly inserted waypoint 201 is shown to be inserted in first leg 106 and proposed new legs 302 and 304 are also shown. The FMS automatically generates the new legs such that the lines from the waypoint snap to the end points of whatever flight plan leg is nearest the cursor on the displayed map at any given time to thereby generate a new proposed flight plan. See Col. 2, line 61 to Col. 3, line 16. Thus, the automatic selection of the leg into which the new waypoint is inserted takes advantage of two important factors: (1) the statistical fact that most pilots fly routes such that newly added waypoints are inserted into the closest flight plan legs; and (2) once the waypoint has been selected, the FMS is then capable of calculating the location of the closest flight plan leg. The pilot can then click an appropriate button to inform the FMS on whether to adjust the flight plan or not. See Col. 3, lines 16-29. Other persons associated with the planning of the flight, on or off the aircraft, other than the pilot are also capable of operating the invention. See Col. 3, lines 43-48.

The Onken '744 patent discloses a method for automatically correcting the flight of an aircraft, such as in a flight management system (FMS) used by a pilot during the flight, following a change in the flight-relevant parameters. Thus, the method permits the autonomous creation of flight plans as a reaction to, for example, air-traffic control instructions or incomplete pilot inputs. See Col. 1, lines 13-15, 33-36 and 60-63. The method includes supplying the flight plan, the flight status and environment-stipulated parameters present at the FMS to computer 1, where they are stored. The planning-relevant change inputs, such as all air-traffic control instructions, the auto-pilot inputs of the pilot and the pilot inputs for course, altitude and speed that are supplied to the FMS, are supplied to the mechanical systems of the aircraft and computer 1.

Computer 1 verifies whether the change inputs necessitate a change in the flight plan or cause a discontinuity in the flight plan. Computer 1 requests navigation data as needed and flying performance data, if present, from the databases also available to the FMS.

The Onken '744 patent also describes that, in the event of a lateral discontinuity or deviation, computer 1 corrects the flight path laterally within the discontinuity with the aid of a suitable search-and-selection procedure. One search-and-selection procedure is an algorithm that searches for the most favorable flight path from a starting point to a destination point in that the flight path up to this point is expanded by new path elements. The elements are selected according to certain criteria, such as allowing segments of standard routes (not only direct connections between two path points) and/or planning the route to a fixed final approach point (not directly to the runway of the target airport), such that the route is planned as of the last reliably-known or estimatable point in the flight path. The elements are evaluated based upon the association of the respective path element with standard routes, the direction of the respective path element relative to the direct connection between start and destination, the length of the respective path element, in relation to the status of the on-board and/or ground navigation facilities, and/or the position of the respective path element relative to detected local weather disturbances. The entire path is additionally evaluated based on the path length, and foreseeable fuel consumption. The search-and-selection procedure is ended when the optimum path has been found, a sufficiently good path has been found, no better path was found after a certain number of attempts, all possible paths are tested, or a maximum number of paths have been evaluated. Afterward, or in the event of a purely vertical discontinuity or deviation, the flight-altitude profile is corrected or re-generated at least for the region of the discontinuity or, if needed, for the entire remaining flight plan. The corrected flight plan is supplied to the FMS. See Col. 2, line 52 to Col. 4, line 32.

The Nobe '231 patent discloses a route setting method and apparatus in a navigation system for performing a route self-guidance of a vehicle to a destination. See Col. 1, lines 7-12. In particular, the Nobe '231 patent provides a route setting method in a navigation system for obtaining the shortest route from a starting position to a destination position while also considering traffic regulations. See Col. 10, lines 17 to 27.

The Zweben '109 patent describes a system and method for scheduling a complex activity, such as operation of a manufacturing facility or maintenance and repair of a complex system such as the Space Shuttle, that includes performance of multiple tasks, the completion of which necessitates the use of multiple resources and adherence to state requirements of multiple attributes. The tasks, resources and attributes are related by multiple constraints, such that the system and method combine the techniques of constraint-based iterative repair with the techniques of material requirements planning. The invention of the Zweben '109 patent is an improvement over the Master Production Scheduling (MPS) that has been used to address the inventory planning problem. The MPS includes a Material Requirements Planning (MRP) System to develop a schedule for the production of finished goods. The schedule developed by the MRP assumes infinite capacity, so Finite Capacity Scheduling (FCS) systems may be used to develop a schedule with finite capacity. One type of FCS system uses mathematical programming techniques, such as linear programming or integer programming (e.g., a branch and bound method), to develop an acceptable schedule. This technique, however, is very slow in producing a final schedule and requires a large information storage capacity, such that it is not suitable for use in situations where frequent and rapid rescheduling is required. See Col. 1, line 15 to Col. 4, line 17.

The Aslin '919 patent describes an onboard central maintenance computer system (CMCS) integrated into an aircraft system and a system for collecting and analyzing complete maintenance information. The CMCS collects, consolidates and reports line replaceable unit (LRU) fault data in order to aid flight crew and maintenance personnel in maintenance procedures. See Abstract. As shown in Figures 1 and 2, an indirect data bus 42 of the communications system 16 couples the CMC 12 to the integrated display system (IDS) 36 so that the CMC receives air data computer (ADC) fault data. The direct data bus 44 of the communications system 16 couples the CMC directly to non-built in test equipment (BITE) LRUs, such as the wing anti-ice LRU 48. See Col. 9, lines 47-63. For example, in one embodiment, the communications system is connected to 65 monitored LRU systems, and the collection cycle is performed once every second. See Col. 10, lines 41-43. The IDS 36 collects and processes fault data from computerized control systems 40 connected to the engine

indicating and crew alerting system (EICAS) and the electronic flight instrument system (EFIS). The EICAS provides primary caution, warning and status condition display indications to the flight crew and the EFIS provides the primary navigation data display including attitude, altitude, course, etc. The IDS 36 displays information, such as primary flight, navigation, EICAS messages, etc. on an integrated display unit (IDU) 56. The dedicated displays of the IDU 56 are used by the IDS to annunciate system observations to the flight crew. The type of LRU fault data collected at the IDS is data indicative of situations that require crew awareness, i.e., flight deck annunciation, or that affect dispatchability. See Col. 10, line 65 to Col. 11, line 24. Fault data is detected while the aircraft is in flight. See Col. 11, lines 50-51. Most of the fault data collected via the direct data bus 44 is in an analog discrete format with signals indicative of characteristics such as switch position, valve position, voltage level, etc. The values of the analog discrete signals can be mapped to binary values and packed into digital words that are presented on the respective displays of the IDU 56. The analog discrete fault data is analyzed then analyzed by the CMC in the same manner as the digital fault data collected from the EICAS and the EFIS. See Col. 12, lines 11-49.

In contrast to the disclosures of the cited references, independent claims 1 and 15 of the claimed invention recite that: (i) a proposed flight assignment for the aircraft is determined based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft; (ii) compliance of the proposed flight assignment with a decision criterion describing requirements for aircraft routing is determined; (iii) the proposed flight assignment is optimized such that the proposed flight assignment meets the decision criterion if the decision criterion is unmet; and (iv) a flight assignment plan is generated using the proposed flight assignment that meets the decision criterion. In addition, independent claims 29 and 35 recite that: (i) a flight network is generated from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; (ii) at least one of the maintenance and operational constraints are modeled; and (iii) an aircraft routing proposal that satisfies the received information is determined. Thus, the systems and methods of the claimed invention determine feasible aircraft routings, such as can be used to assign all scheduled flights within a given time horizon based on the available aircraft, that satisfy all

prescribed maintenance and operational constraints. In particular, as described in paragraphs 27 and 28 of the specification, a processor 106 may generate an aircraft routing proposal that satisfies received information describing the possible flight of the aircraft, such as flight origin, destination, start time, end time, etc. and any constraints contained therein. Thus, the routing proposal may describe possible sequences of flights and non-flight events for a given aircraft. To generate the aircraft routing proposal, the processor 106 may organize the received information into a flight network for each aircraft.

As shown in Figure 3 and described in paragraph 29 of the specification, the processor 106 may organize a flight network by creating data structures that contain at least location and/or time information in its memory. From the structures, a map of all flights in an airline schedule may be represented in memory or other storage. Figure 3 illustrates an example of a flight network 300 that shows all possible flights for a particular aircraft meeting the maintenance and operational criteria in the received information. The vertical timelines are located over a horizontal space representing given stations, such as airports "A", "B", "C", and "D" 301. Each event (e.g., an arrival or departure) at a given station is represented by a node 302 for a specific time and location coordinate. Flights are represented by "flight arcs" 304 which connect event nodes 302 at the origin and destination of the flights. "Ground arcs" 306 in the flight network 300 connect chronologically successive pairs of the nodes 302 at a given station. As described in paragraph 30, flight arc 308 from node 310 to node 312 represents a flight in the airline schedule departing from airport "B" and arriving at airport "D", for example. If the aircraft is assigned the route conveying travelers along the flight arc 308, the network 300 shows the aircraft may also stay at airport "D" for maintenance or refueling during ground arc 314, and then convey travelers along flight arc 316.

As stated in paragraphs 31 to 36, to determine the aircraft routing proposal, the processor 106 may model all maintenance and operational constraints in the received information in each aircraft's flight network and determine the most efficient and shortest path from origin to destination in the flight network, which represents an aircraft routing proposal for the respective aircraft.

From the aircraft routing proposal, the processor 106 may determine proposed flight assignments, which may include a sequence of flights and/or ground arcs (i.e., routes) satisfying operational and maintenance constraints. The proposed flight assignments are generated to meet a decision criteria, such as maximizing net revenue. See paragraph 38. A simplex method, revised simplex method or any other method compatible with the invention may be used to determine the proposed flight assignments based on the aircraft routing proposal. See paragraph 40. If the proposed flight assignments do not meet a decision criteria, then the processor 106 may generate additional routing proposals. See paragraph 42. The processor 106 determines a flight assignment plan from the final flight assignment proposal that meets the decision criteria. See paragraph 48. Once the processor 106 generates the flight assignment plan, it may store the plan in the flight assignment plan database 110 where it may be accessed by others, such as the flight information display system 112 to make resource management decisions such as gate assignment and man-power staffing. See paragraph 49.

While the Pauly '171 patent discloses an apparatus and method for inserting a waypoint into a preexisting flight plan, which includes selecting a waypoint on a Flight Management System (FMS) graphical display of a portion of the flight plan and automatically generating a proposed changed flight plan that can then be chosen to adjust the flight plan, which may be considered generating an aircraft routing proposal based on information describing a possible flight of an aircraft, it does not also determine a proposed flight assignment for the aircraft based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft, as recited by independent claims 1 and 15. The Official Action acknowledges on page 2, item 2 that the Pauly '171 patent does not teach determining whether the proposed flight assignment meets a decision criterion describing requirements for aircraft routing; optimizing the proposed flight assignment such that the proposed flight assignment meets the decision criterion if the decision criterion is unmet; and generating a flight assignment plan using the proposed flight assignment that meets the decision criterion. Thus, the Pauly '171 patent simply generates a proposed changed flight plan that one may select to adjust an existing flight plan, it does not then utilize the proposed changed flight plan to determine a proposed flight assignment for the aircraft, which, as stated in paragraph 38 of the specification, may

include a sequence of flights and/or ground arcs (i.e., routes) satisfying operational and maintenance constraints.

Additionally, although the Pauly '171 patent generates a proposed changed flight plan, the Pauly '171 patent does not disclose generating the proposed changed flight plan by generating a flight network from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; modeling at least one of the maintenance and operational constraints; and determining an aircraft routing proposal that satisfies the received information, as recited by independent claims 29 and 35. The Pauly '171 patent states that once a pilot has selected waypoint 201 and inserts it into the flight plan, the FMS automatically generates the new legs such that the lines from the waypoint snap to the end points of whatever flight plan leg is nearest the cursor on the displayed map at any given time to thereby generate a new proposed flight plan. Thus, the Pauly '171 patent does not generate the new proposed flight plan by generating a flight network that includes the maintenance and operational constraints, as recited by independent claims 29 and 35. In addition, the Pauly '171 patent does not describe modeling the maintenance and/or operational constraints, and then determining an aircraft routing proposal, as also recited by independent claims 29 and 35.

Similarly, while the Onken '744 patent discloses a method for automatically creating flight plans as a reaction to, for example, air-traffic control instructions or incomplete pilot inputs, and supplying the new flight plan to the FMS, the Onken '744 patent does not also determine a proposed flight assignment for the aircraft based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft, as recited by independent claims 1 and 15. Furthermore, although the Onken '744 patent describes using a search-and-selection procedure to search for the most favorable flight path from a starting point to a destination point by expanding the flight path by new path elements that are selected according to certain criteria, such as allowing segments of standard routes (not only direct connections between two path points) and/or planning the route to a fixed final approach point (not directly to the runway of the target airport), such that the route is planned as of the last reliably-known or estimatable point in the flight path, the Onken '744 patent also does not determine whether the proposed flight assignment meets a decision criterion describing

requirements for aircraft routing; optimize the proposed flight assignment such that the proposed flight assignment meets the decision criterion if the decision criterion is unmet; and generate a flight assignment plan using the proposed flight assignment that meets the decision criterion, as recited by independent claims 1 and 15. The Onken '744 patent simply generates a proposed changed flight plan, such as by using the search-and-selection procedure to search for the most favorable flight path, that is then supplied to the FMS as the flight plan for the remainder of the flight, it does not then utilize the proposed changed flight plan to determine a proposed flight assignment for the aircraft, which, as stated in paragraph 38 of the specification, may include a sequence of flights and/or ground arcs (i.e., routes) satisfying operational and maintenance constraints. Because the Onken '744 patent does not determine a proposed flight assignment for the aircraft based on an aircraft routing proposal, it also does not determine whether the proposed flight assignment meets a decision criterion describing requirements for aircraft routing, optimize the proposed flight assignment if needed, and generate a flight assignment plan using the proposed flight assignment that meets the decision criterion, as recited by independent claims 1 and 15.

The Onken '744 patent automatically creates revised flight plans to supply to the FMS, but the Onken '744 patent does not disclose generating the revised flight plan by generating a flight network from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; modeling at least one of the maintenance and operational constraints; and determining an aircraft routing proposal that satisfies the received information, as recited by independent claims 29 and 35. Although the Onken '744 patent may create the revised flight plan by using a search-and-selection procedure to search for the most favorable flight path from a starting point to a destination point by expanding the flight path by new path elements that are selected according to certain criteria, such as allowing segments of standard routes (not only direct connections between two path points) and/or planning the route to a fixed final approach point (not directly to the runway of the target airport), the Onken '744 patent does not generate the revised flight plan by generating a flight network that includes maintenance and operational constraints, as recited by independent claims 29 and 35. In addition, the Onken '744 patent does not describe modeling the maintenance and/or operational

constraints, and.then determining an aircraft routing proposal, as also recited by independent claims 29 and 35.

The Nobe '231 patent provides a route setting method in a navigation system for obtaining the shortest route from a starting position to a destination position while also considering traffic regulations. The Nobe '231 patent, however, does not disclose generating an aircraft routing proposal based on information describing a possible flight of an aircraft and determining a proposed flight assignment for the aircraft based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft, as recited by independent claims 1 and 15. Additionally, the Nobe '231 patent also does not determine whether the proposed flight assignment meets a decision criterion describing requirements for aircraft routing; optimize the proposed flight assignment such that the proposed flight assignment meets the decisions criterion if the decision criterion is unmet; and generate a flight assignment plan using the proposed flight assignment that meets the decision criterion, as recited by independent claims 1 and 15. Because the Nobe '231 patent simply describes taking traffic regulations into account while obtaining the shortest route from a starting position to a destination position, the Nobe '231 patent does not determine a proposed flight assignment based on a generated aircraft routing proposal, nor does the Nobe '231 patent generate a flight assignment plan using the proposed flight assignment that meets a decision criterion, as recited by independent claims 1 and 15. Furthermore, because the Nobe '231 patent does not disclose any type of aircraft routing proposal, it necessarily also does not disclose generating an aircraft routing proposal by generating a flight network from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; modeling at least one of the maintenance and operational constraints; and determining an aircraft routing proposal that satisfies the received information, as recited by independent claims 29 and 35.

Because the Zweben '109 patent discloses only techniques for scheduling a complex activity, such as operation of a manufacturing facility or maintenance and repair of a complex system such as the Space Shuttle, that includes performance of multiple tasks, the completion of which necessitates the use of multiple resources and adherence to state requirements of multiple attributes, the Zweben '109 patent does not disclose generating an aircraft routing proposal based

on information describing a possible flight of an aircraft and determining a proposed flight assignment for the aircraft based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft, as recited by independent claims 1 and 15. Additionally, the Zweben '109 patent does not determine whether the proposed flight assignment meets a decision criterion describing requirements for aircraft routing; optimize the proposed flight assignment such that the proposed flight assignment meets the decision criterion if the decision criterion is unmet; and generate a flight assignment plan using the proposed flight assignment that meets the decision criterion. Furthermore, because the Zweben '109 patent does not disclose any type of aircraft routing proposal, it necessarily also does not disclose generating an aircraft routing proposal by generating a flight network from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; modeling at least one of the maintenance and operational constraints; and determining an aircraft routing proposal that satisfies the received information, as recited by independent claims 29 and 35.

The Aslin '919 patent describes an onboard central maintenance computer system (CMCS) integrated into an aircraft system that collects, consolidates and reports line replaceable unit (LRU) fault data in order to aid flight crew and maintenance personnel in maintenance procedures, it does not disclose generating an aircraft routing proposal based on information describing a possible flight of an aircraft; determining a proposed flight assignment for the aircraft based on the generated aircraft routing proposal and complying with received information describing the possible flight of the aircraft; determining whether the proposed flight assignment meets a decision criterion describing requirements for aircraft routing; optimizing the proposed flight assignment such that the proposed flight assignment meets the decisions criterion if the decision criterion is unmet; and/or generating a flight assignment plan using the proposed flight assignment that meets the decision criterion, as recited by independent claims 1 and 15. Because the Aslin '919 patent discloses only a computer system for collecting and reporting fault data to the appropriate personnel, it does not teach the generation of an aircraft routing proposal, a proposed flight assignment based on the routing proposal, and/or a flight assignment plan using the proposed flight assignment, as recited by independent claims 1 and 15.

In addition, although the Aslin '919 patent describes collecting and processing fault data from computerized control systems indicative of situations that require crew awareness, i.e., flight deck annunciation, or that affect dispatchability and mapping any analog discrete signals to binary values, the Aslin '919 patent does not teach generating an aircraft routing proposal by generating a flight network from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; and/or modeling at least one of the maintenance and operational constraints, as recited by independent claims 29 and 35. As acknowledged on page 5, item 5 of the Official Action, the Aslin '919 patent does not teach determining an aircraft routing proposal that satisfies the received information. Because the Aslin '919 patent only discloses collecting and processing fault data from computerized control systems, it does not teach generating a flight network from information that describes a possible flight of an aircraft, as recited by independent claims 29 and 35. The Aslin '919 patent does not utilize any type of information describing a possible flight of an aircraft, let alone to generate a flight network, which, as stated in paragraph 38 of the specification, may include a sequence of flights and/or ground arcs (i.e., routes) satisfying operational and maintenance constraints. Furthermore, the Aslin '919 patent states that analog discrete signals may be mapped to binary values, but this does not teach modeling at least one of the maintenance and operational constraints from information that describes a possible flight of an aircraft, as recited by independent claims 29 and 35. Modeling the maintenance and/or operational constraints that are received in the information describing a possible flight of an aircraft permits the determination of a routing proposal that satisfies the received information, such as via the various equations disclosed in the specification, which is a very different concept than simply mapping analog discrete signals to binary values.

Even if any two or more of the cited references were combined, none of the combined references would teach or suggest that: (i) a proposed flight assignment for the aircraft is determined based on the generated aircraft routing proposal and compliance with received information describing the possible flight of the aircraft; (ii) compliance of the proposed flight assignment with a decision criterion describing requirements for aircraft routing is determined; (iii) the proposed flight assignment is optimized such that the proposed flight assignment meets

the decision criterion if the decision criterion is unmet; and (iv) a flight assignment plan is generated using the proposed flight assignment that meets the decision criterion, as recited by independent claims 1 and 15. In addition, none of the combined references teach or suggest that: (i) a flight network is generated from information that describes a possible flight of an aircraft, which includes maintenance and operational constraints; (ii) at least one of the maintenance and operational constraints are modeled; and (iii) an aircraft routing proposal that satisfies the received information is determined, as recited by independent claims 29 and 35.

Accordingly, none of the references, taken either individually or in combination, teach or suggest the methods or systems for aircraft routing of independent claims 1, 15, 29 and 35. Since the independent claims are patentably distinct from the cited references, taken either individually or in combination, the claims that depend therefrom are also patentably distinct from the cited references for at least the same reasons since the dependent claims include each of the elements of a respective independent claim. Consequently, Applicants submit that, for at least those reasons set forth above, the rejections of the claims under 35 U.S.C. § 103(a) are therefore also overcome.

CONCLUSION

In view of the amendments and the remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

Guy R. Gosnell
Registration No. 34,610

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 9, 2004.

Gwen Frickhoeffer